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PCT/PTO 17 JUN 2002

Attorney Docket No. 14114.0342U2

1

SEQUENCE LISTING

<110> Howard A. Fields
<110> Yury E. Khudyakov

<120> Synthetic Peptides Immunoreactive With Hepatitis A
Virus Antibodies

<130> 14114.0342P1

<140> US/10/031,088

<141> 2002-01-14

<150> PCT/US00/19267

<151> 2000-07-14

<150> 60/144,412

<151> 1999-07-15

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<223> Description of Artificial Sequence:Synthetic HAV
VP2 and VP4 Peptides

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Gly Leu Asp His Ile Leu Ser Leu Ala Asp Ile Glu Glu Glu Gln Met
1 5 10 15

Ile Gln Ser Val Gln
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<212> PRT

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VP2 and VP4 Peptides

<400> 2

Asp Arg Thr Ala Val Thr Gly Ala Ser Tyr Phe Thr Ser Val Asp Gln
1 5 10 15

Ser Ser Val His Gln
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<213> Artificial Sequence

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<223> Description of Artificial Sequence:Synthetic HAV
VP2 and VP4 Peptides

<400> 3

Glu	Val	Gly	Ser	His	Gln	Val	Glu	Pro	Leu	Arg	Thr	Ser	Val	Asp	Lys
1				5					10					15	

Pro	Gly	Ser	Lys	Gln
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VP2 and VP4 Peptides

<400> 4

Glu	Pro	Leu	Arg	Thr	Ser	Val	Asp	Lys	Pro	Gly	Ser	Lys	Lys	Thr	Gln
1				5					10					15	

Gly	Glu	Lys	Phe	Gln
				20

<210> 5

<211> 21

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<213> Artificial Sequence

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<223> Description of Artificial Sequence:Synthetic HAV
VP2 and VP4 Peptides

<400> 5

Asp	Lys	Pro	Gly	Ser	Lys	Lys	Thr	Gln	Gly	Glu	Lys	Phe	Phe	Leu	Ile
1				5					10					15	

His	Ser	Ala	Asp	Gln
				20

<210> 6

<211> 21

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VP2 and VP4 Peptides

<400> 6

Leu	Tyr	Asn	Glu	Gln	Phe	Ala	Val	Gln	Gly	Leu	Leu	Arg	Tyr	His	Thr
1				5					10					15	

Tyr	Ala	Arg	Phe	Gln
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 VP2 and VP4 Peptides

<400> 7
 His Thr Tyr Ala Arg Phe Gly Ile Glu Ile Gln Val Gln Ile Asn Pro
 1 5 10 15

Thr Pro Phe Gln
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<210> 8
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 VP2 and VP4 Peptides

<400> 8
 Ile Asn Pro Thr Pro Phe Gln Gln Gly Gly Leu Ile Cys Ala Met Val
 1 5 10 15

Pro Gly Asp Gln
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<210> 9
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 VP2 and VP4 Peptides

<400> 9
 His Phe Lys Asp Pro Gln Tyr Pro Val Trp Glu Leu Thr Ile Arg Val
 1 5 10 15

Trp Ser Glu Leu Gln
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<210> 10
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 VP2 and VP4 Peptides

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<400> 10

Asn	Ile	Gly	Thr	Gly	Thr	Ser	Ala	Tyr	Thr	Ser	Leu	Asn	Val	Leu	Ala
1				5					10					15	

Arg	Phe	Thr	Asp	Gln
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VP3 Peptide

<400> 11

Ser	Asp	Pro	Ser	Gln	Gly	Gly	Gly	Ile	Lys	Ile	Thr	His	Phe	Thr	Thr
1				5					10					15	

Trp	Thr	Ser	Ile	Gln
				20

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<211> 20

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<223> Description of Artificial Sequence:Synthetic HAV
VP3 Peptide

<400> 12

Gly	Gly	Ile	Lys	Ile	Thr	His	Phe	Thr	Thr	Trp	Thr	Ser	Ile	Pro	Thr
1				5					10					15	

Leu	Ala	Ala	Gln
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VP3 Peptide

<400> 13

Gln	Phe	Pro	Phe	Asn	Ala	Ser	Asp	Ser	Val	Gly	Gln	Gln	Ile	Lys	Val
1				5					10					15	

Ile	Pro	Val	Asp	Gln
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<210> 14
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 <223> Description of Artificial Sequence:Synthetic HAV
 VP3 Peptide

<400> 14
 Phe Asn Ala Ser Asp Ser Val Gly Gln Gln Ile Lys Val Ile Pro Val
 1 5 10 15

Asp Pro Tyr Phe Gln
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<210> 15
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 VP3 Peptide

<400> 15
 Ser Asp Ser Val Gly Gln Gln Ile Lys Val Ile Pro Val Asp Pro Tyr
 1 5 10 15

Phe Phe Gln Met Gln
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<210> 16
 <211> 21
 <212> PRT
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<220>
 <223> Description of Artificial Sequence:Synthetic HAV
 VP3 Peptide

<400> 16
 Ile Lys Val Ile Pro Val Asp Pro Tyr Phe Phe Gln Met Thr Asn Thr
 1 5 10 15

Asn Pro Asp Gln Gln
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<210> 17
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 <212> PRT
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 VP3 Peptide

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<400> 17

Lys	Cys	Ile	Thr	Ala	Leu	Ala	Ser	Ile	Cys	Gln	Met	Phe	Cys	Phe	Trp
1				5					10					15	

Arg	Gly	Asp	Leu	Gln
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<210> 18

<211> 21

<212> PRT

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<223> Description of Artificial Sequence:Synthetic HAV
VP3 Peptide

<400> 18

Phe	Trp	Arg	Gly	Asp	Leu	Val	Phe	Asp	Phe	Gln	Val	Phe	Pro	Thr	Lys
1				5					10					15	

Tyr	His	Ser	Gly	Gln
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<210> 19

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<212> PRT

<213> Artificial Sequence

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<223> Description of Artificial Sequence:Synthetic HAV
VP3 Peptide

<400> 19

Phe	Asp	Phe	Gln	Val	Phe	Pro	Thr	Lys	Tyr	His	Ser	Gly	Arg	Leu	Leu
1				5					10					15	

Phe	Cys	Phe	Val	Gln
			20	

<210> 20

<211> 21

<212> PRT

<213> Artificial Sequence

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<223> Description of Artificial Sequence:Synthetic HAV
VP3 Peptide

<400> 20

Phe	Pro	Thr	Lys	Tyr	His	Ser	Gly	Arg	Leu	Leu	Phe	Cys	Phe	Val	Pro
1				5					10					15	

Gly	Asn	Glu	Leu	Gln
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<210> 21
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<212> PRT
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 <223> Description of Artificial Sequence:Synthetic HAV
 VP3 Peptide

<400> 21
 Gly Ile Thr Leu Lys Gln Ala Thr Thr Ala Pro Cys Ala Val Met Asp
 1 5 10 15
 Ile Thr Gly Val Gln
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<210> 22
 <211> 21
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 VP3 Peptide

<400> 22
 Val Ala Ser His Val Arg Val Asn Val Tyr Leu Ser Ala Ile Asn Leu
 1 5 10 15
 Glu Cys Phe Ala Gln
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<210> 23
 <211> 21
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 VP1 Peptide

<400> 23
 Thr Thr Val Ser Thr Glu Gln Asn Val Pro Asp Pro Gln Val Gly Ile
 1 5 10 15
 Thr Thr Met Lys Gln
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<210> 24
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 <212> PRT
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 VP1 Peptide

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<400> 24

Gln	Asn	Val	Pro	Asp	Pro	Gln	Val	Gly	Ile	Thr	Thr	Met	Lys	Asp	Leu
1				5					10					15	

Lys	Gly	Lys	Ala	Gln
			20	

<210> 25

<211> 21

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<223> Description of Artificial Sequence:Synthetic HAV
VP1 Peptide

<400> 25

Asn	Arg	Gly	Lys	Met	Asp	Val	Ser	Gly	Val	Gln	Ala	Pro	Val	Gly	Ala
1				5					10					15	

Ile	Thr	Thr	Ile	Gln
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<210> 26

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<212> PRT

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<223> Description of Artificial Sequence:Synthetic HAV
VP1 Peptide

<400> 26

Ile	Thr	Thr	Ile	Glu	Asp	Pro	Val	Leu	Ala	Lys	Lys	Val	Pro	Glu	Thr
1				5					10					15	

Phe	Pro	Glu	Leu	Gln
			20	

<210> 27

<211> 21

<212> PRT

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<223> Description of Artificial Sequence:Synthetic HAV
VP1 Peptide

<400> 27

Glu	Asp	Pro	Val	Leu	Ala	Lys	Lys	Val	Pro	Glu	Thr	Phe	Pro	Glu	Leu
1				5					10					15	

Lys	Pro	Gly	Glu	Gln
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<220>

<223> Description of Artificial Sequence:Synthetic HAV
VP1 Peptide

<400> 31

His Phe Leu Cys Thr Phe Thr Phe Asn Ser Asn Asn Lys Glu Tyr Thr
1 5 10 15Phe Pro Ile Thr Gln
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<210> 32

<211> 21

<212> PRT

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<223> Description of Artificial Sequence:Synthetic HAV
VP1 Peptide

<400> 32

Thr Pro Val Gly Leu Ala Val Asp Thr Pro Trp Val Glu Lys Glu Ser
1 5 10 15Ala Leu Ser Ile Gln
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<210> 33

<211> 21

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<400> 33

Leu Ser Phe Ser Cys Tyr Leu Ser Val Thr Glu Gln Ser Glu Phe Tyr
1 5 10 15Phe Pro Arg Ala Gln
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<210> 34

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VP1 Peptide

<400> 34

Ser Val Thr Glu Gln Ser Glu Phe Tyr Phe Pro Arg Ala Pro Leu Asn
1 5 10 15Ser Asn Ala Met Gln
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 VP1 Peptide

<400> 35
 Pro Leu Asn Ser Asn Ala Met Leu Ser Thr Glu Ser Met Met Ser Arg
 1 5 10 15
 Ile Ala Ala Gly Gln
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<210> 36
 <211> 21
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 VP1 Peptide

<400> 36
 Met Ser Arg Ile Ala Ala Gly Asp Leu Glu Ser Ser Val Asp Asp Pro
 1 5 10 15
 Arg Ser Glu Glu Gln
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<210> 37
 <211> 21
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 VP1 Peptide

<400> 37
 Ala Gly Asp Leu Glu Ser Ser Val Asp Asp Pro Arg Ser Glu Glu Asp
 1 5 10 15
 Lys Arg Phe Glu Gln
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<210> 38
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 VP1 Peptide

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<400> 38

Val	Asp	Asp	Pro	Arg	Ser	Glu	Glu	Asp	Lys	Arg	Phe	Glu	Ser	His	Ile
1				5					10					15	

Glu	Cys	Arg	Lys	Gln
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<210> 39

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P2A Peptide

<400> 39

Ser	His	Ile	Glu	Cys	Arg	Lys	Pro	Tyr	Lys	Glu	Leu	Arg	Leu	Glu	Val
1				5					10					15	

Gly	Lys	Gln	Arg	Gln
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P2A Peptide

<400> 40

Pro	Tyr	Lys	Glu	Leu	Arg	Leu	Glu	Val	Gly	Lys	Gln	Arg	Leu	Lys	Tyr
1				5					10					15	

Ala	Gln	Glu	Glu	Gln
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<210> 41

<211> 21

<212> PRT

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<223> Description of Artificial Sequence:Synthetic HAV
P2A Peptide

<400> 41

Gln	Arg	Leu	Lys	Tyr	Ala	Gln	Glu	Glu	Leu	Ser	Asn	Glu	Val	Leu	Pro
1				5					10					15	

Pro	Pro	Arg	Lys	Gln
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<210> 42

<211> 21

<212> PRT

<213> Artificial Sequence

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<220>

<223> Description of Artificial Sequence:Synthetic HAV
P2A Peptide

<400> 42

Val Leu Pro Pro Pro Arg Lys Met Lys Gly Leu Phe Ser Gln Ala Lys
1 5 10 15Ile Ser Leu Phe Gln
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<210> 43

<211> 21

<212> PRT

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<223> Description of Artificial Sequence:Synthetic HAV
P2A Peptide

<400> 43

Phe Ser Gln Ala Lys Ile Ser Leu Phe Tyr Thr Glu Glu His Glu Ile
1 5 10 15Met Lys Phe Ser Gln
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<210> 44

<211> 21

<212> PRT

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P2A Peptide

<400> 44

Lys Val Asn Phe Pro His Gly Met Leu Asp Leu Glu Glu Ile Ala Ala
1 5 10 15Asn Ser Lys Asp Gln
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<210> 45

<211> 21

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P2A Peptide

<400> 45

Asp Leu Glu Glu Ile Ala Ala Asn Ser Lys Asp Phe Pro Asn Met Ser
1 5 10 15Glu Thr Asp Leu Gln
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<210> 46
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 P2A Peptide

<400> 46
 Lys Ile Asn Leu Ala Asp Arg Met Leu Gly Leu Ser Gly Val Gln Glu
 1 5 10 15
 Ile Lys Glu Gln
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<210> 47
 <211> 26
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 P2A Peptide

<400> 47
 Gln Arg Leu Lys Tyr Ala Gln Glu Glu Leu Ser Asn Glu Val Leu Pro
 1 5 10 15
 Pro Pro Arg Lys Met Lys Gly Leu Phe Gln
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<210> 48
 <211> 25
 <212> PRT
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 P2A Peptide

<400> 48
 Trp Leu Asn Pro Lys Lys Ile Asn Leu Ala Asp Arg Met Leu Gly Leu
 1 5 10 15
 Ser Gly Val Gln Glu Ile Lys Glu Gln
 20 25

<210> 49
 <211> 21
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 <213> Artificial Sequence

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 P2B Peptide

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<400> 49

Val	Ile	Gln	Gln	Leu	Asn	Gln	Asp	Glu	His	Ser	His	Ile	Ile	Gly	Leu
1				5				10						15	

Leu	Arg	Val	Met	Gln
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<210> 50

<211> 21

<212> PRT

<213> Artificial Sequence

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P2C Peptide

<400> 50

Asn	Ile	Leu	Lys	Asp	Asn	Gln	Gln	Lys	Ile	Glu	Lys	Ala	Ile	Glu	Glu
1				5				10						15	

Ala	Asp	Glu	Phe	Gln
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<210> 51

<211> 21

<212> PRT

<213> Artificial Sequence

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<223> Description of Artificial Sequence:Synthetic HAV
P2C Peptide

<400> 51

Leu	Gly	Ser	Ile	Asn	Gln	Ala	Met	Val	Thr	Arg	Cys	Glu	Pro	Val	Val
1				5				10						15	

Cys	Tyr	Leu	Tyr	Gln
			20	

<210> 52

<211> 21

<212> PRT

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<223> Description of Artificial Sequence:Synthetic HAV
P2C Peptide

<400> 52

Arg	Cys	Glu	Pro	Val	Val	Cys	Tyr	Leu	Tyr	Gly	Lys	Arg	Gly	Gly	Gly
1				5				10						15	

Lys	Ser	Leu	Thr	Gln
			20	

<210> 53

<211> 21

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<220>

<223> Description of Artificial Sequence:Synthetic HAV
P2C Peptide

<400> 53

Thr Lys Pro Val Ala Ser Asp Tyr Trp Asp Gly Tyr Ser Gly Gln Leu
1 5 10 15Val Cys Ile Ile Gln
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<210> 54

<211> 21

<212> PRT

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<223> Description of Artificial Sequence:Synthetic HAV
P2C Peptide

<400> 54

Val Ser Gly Cys Pro Met Arg Leu Asn Met Ala Ser Leu Glu Glu Lys
1 5 10 15Gly Arg His Phe Gln
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<210> 55

<211> 21

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<223> Description of Artificial Sequence:Synthetic HAV
P2C Peptide

<400> 55

Leu Asn Met Ala Ser Leu Glu Glu Lys Gly Arg His Phe Ser Ser Pro
1 5 10 15Phe Ile Ile Ala Gln
20

<210> 56

<211> 21

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<223> Description of Artificial Sequence:Synthetic HAV
P2C Peptide

<400> 56

Asn Pro Ser Pro Lys Thr Val Tyr Val Lys Glu Ala Ile Asp Arg Arg
1 5 10 15Leu His Phe Lys Gln
20

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<210> 57
<211> 21
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P2C Peptide

<400> 57
Val Lys Glu Ala Ile Asp Arg Arg Leu His Phe Lys Val Glu Val Lys
1 5 10 15
Pro Ala Ser Phe Gln
20

<210> 58
<211> 21
<212> PRT
<213> Artificial Sequence

<220>
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P2C Peptide

<400> 58
Val Lys Pro Ala Ser Phe Phe Lys Asn Pro His Asn Asp Met Leu Asn
1 5 10 15
Val Asn Leu Ala Gln
20

<210> 59
<211> 21
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P2C Peptide

<400> 59
Lys Asn Pro His Asn Asp Met Leu Asn Val Asn Leu Ala Lys Thr Asn
1 5 10 15
Asp Ala Ile Lys Gln
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<210> 60
<211> 21
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<223> Description of Artificial Sequence:Synthetic HAV
P2C Peptide

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<400> 60

Leu Ala Lys Thr Asn Asp Ala Ile Lys Asp Met Ser Cys Val Asp Leu
 1 5 10 15

Ile Met Asp Gly Gln
 20

<210> 61

<211> 20

<212> PRT

<213> Artificial Sequence

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<223> Description of Artificial Sequence:Synthetic HAV
 P2C Peptide

<400> 61

Val Met Thr Val Glu Ile Arg Lys Gln Asn Met Thr Glu Phe Met Glu
 1 5 10 15

Leu Trp Ser Gln
 20

<210> 62

<211> 21

<212> PRT

<213> Artificial Sequence

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<223> Description of Artificial Sequence:Synthetic HAV
 P3A Peptide

<400> 62

Ser Gln Gly Ile Ser Asp Asp Asp Asn Asp Ser Ala Val Ala Glu Phe
 1 5 10 15

Phe Gln Ser Phe Gln
 20

<210> 63

<211> 21

<212> PRT

<213> Artificial Sequence

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<223> Description of Artificial Sequence:Synthetic HAV
 P3A Peptide

<400> 63

Asp Ser Ala Val Ala Glu Phe Phe Gln Ser Phe Pro Ser Gly Glu Pro
 1 5 10 15

Ser Asn Ser Lys Gln
 20

<210> 64

<211> 21

<212> PRT

<213> Artificial Sequence

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<223> Description of Artificial Sequence:Synthetic HAV
P3A Peptide

<400> 64

Phe Gln Ser Phe Pro Ser Gly Glu Pro Ser Asn Ser Lys Leu Ser Gly
1 5 10 15Phe Phe Gln Ser Gln
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<210> 65

<211> 25

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P3A Peptide

<400> 65

Ser Ala Val Ala Glu Phe Phe Gln Ser Phe Pro Ser Gly Glu Pro Ser
1 5 10 15Asn Ser Lys Leu Ser Gly Phe Phe Gln
20 25

<210> 66

<211> 20

<212> PRT

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<223> Description of Artificial Sequence:Synthetic HAV
P3B Peptide

<400> 66

His Gly Val Thr Lys Pro Lys Gln Val Ile Lys Leu Asp Ala Asp Pro
1 5 10 15Val Glu Ser Gln
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<210> 67

<211> 21

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P3C Peptide

<400> 67

Gly Leu Val Arg Lys Asn Leu Val Gln Phe Gly Val Gly Glu Lys Asn
1 5 10 15Gly Cys Val Arg Gln
20

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<210> 68
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 P3C Peptide

<400> 68
 Asp Val Val Leu Met Lys Val Pro Thr Ile Pro Lys Phe Arg Asp Ile
 1 5 10 15

Thr Gln His Phe Gln
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<210> 69
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 P3C Peptide

<400> 69
 Met Glu Glu Lys Ala Thr Tyr Val His Lys Lys Asn Asp Gly Thr Thr
 1 5 10 15

Val Asp Leu Thr Gln
 20

<210> 70
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<220>
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 P3C Peptide

<400> 70
 Lys Asn Asp Gly Thr Thr Val Asp Leu Thr Val Asp Gln Ala Trp Arg
 1 5 10 15

Gly Lys Gly Glu Gln
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<210> 71
 <211> 20
 <212> PRT
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 <223> Description of Artificial Sequence:Synthetic HAV
 P3C Peptide

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<400> 71

Arg Gly Lys Gly Glu Gly Leu Pro Gly Met Cys Gly Gly Ala Leu Val
1 5 10 15

Ser Ser Asn Gln
20

<210> 72

<211> 20

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:Synthetic HAV
P3C Peptide

<400> 72

Val Ala Lys Leu Val Thr Gln Glu Met Phe Gln Asn Ile Asp Lys Lys
1 5 10 15

Ile Glu Ser Gln
20

<210> 73

<211> 21

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:Synthetic HAV
P3D Peptide

<400> 73

Arg Ile Met Lys Val Glu Phe Thr Gln Cys Ser Met Asn Val Val Ser
1 5 10 15

Lys Thr Leu Phe Gln
20

<210> 74

<211> 21

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:Synthetic HAV
P3D Peptide

<400> 74

Phe Thr Gln Cys Ser Met Asn Val Val Ser Lys Thr Leu Phe Arg Lys
1 5 10 15

Ser Pro Ile Tyr Gln
20

<210> 75

<211> 21

<212> PRT

<213> Artificial Sequence

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<220>

<223> Description of Artificial Sequence:Synthetic HAV
P3D Peptide

<400> 75

Met Leu Ser Lys Tyr Ser Leu Pro Ile Val Glu Glu Pro Glu Asp Tyr
1 5 10 15

Lys Glu Ala Ser Gln
20

<210> 76

<211> 21

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:Synthetic HAV
P3D Peptide

<400> 76

Leu Asp Glu Asn Gly Leu Leu Leu Gly Val His Pro Arg Leu Ala Gln
1 5 10 15

Arg Ile Leu Phe Gln
20

<210> 77

<211> 21

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:Synthetic HAV
P3D Peptide

<400> 77

Cys Pro Lys Asp Glu Leu Arg Pro Leu Glu Lys Val Leu Glu Ser Lys
1 5 10 15

Thr Arg Ala Ile Gln
20

<210> 78

<211> 21

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:Synthetic HAV
P3D Peptide

<400> 78

Ser Lys Thr Arg Ala Ile Asp Ala Cys Pro Leu Asp Tyr Ser Ile Leu
1 5 10 15

Cys Arg Met Tyr Gln
20

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<210> 79
 <211> 21
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence:Synthetic HAV
 P3D Peptide

<400> 79
 Arg Met Tyr Trp Gly Pro Ala Ile Ser Tyr Phe His Leu Asn Pro Gly
 1 5 10 15
 Phe His Thr Gly Gln
 20

<210> 80
 <211> 21
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence:Synthetic HAV
 P3D Peptide

<400> 80
 Lys Thr Met Ile Arg Phe Gly Asp Val Gly Leu Asp Leu Asp Phe Ser
 1 5 10 15
 Ala Phe Asp Ala Gln
 20

<210> 81
 <211> 21
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence:Synthetic HAV
 P3D Peptide

<400> 81
 Asp Leu Asp Phe Ser Ala Phe Asp Ala Ser Leu Ser Pro Phe Met Ile
 1 5 10 15
 Arg Glu Ala Gly Gln
 20

<210> 82
 <211> 21
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence:Synthetic HAV
 P3D Peptide

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<400> 82

Ile	Asn	Asn	Val	Asn	Leu	Tyr	Tyr	Val	Phe	Ser	Lys	Ile	Phe	Gly	Lys
1				5					10					15	

Ser	Pro	Val	Phe	Gln
				20

<210> 83

<211> 21

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:Synthetic HAV
P3D Peptide

<400> 83

Gly	Gln	Lys	Ile	Val	Asp	Glu	Phe	Lys	Lys	Leu	Gly	Met	Thr	Ala	Thr
1				5					10					15	

Ser	Ala	Asp	Lys	Gln
				20

<210> 84

<211> 21

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:Synthetic HAV
P3D Peptide

<400> 84

Leu	Gly	Met	Thr	Ala	Thr	Ser	Ala	Asp	Lys	Asn	Val	Pro	Gln	Leu	Lys
1				5					10					15	

Pro	Val	Ser	Glu	Gln
				20

<210> 85

<211> 21

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:Synthetic HAV
P3D Peptide

<400> 85

Pro	Gln	Leu	Lys	Pro	Val	Ser	Glu	Leu	Thr	Phe	Leu	Lys	Arg	Ser	Phe
1				5					10					15	

Asn	Leu	Val	Glu	Gln
				20

<210> 86

<211> 20

<212> PRT

<213> Artificial Sequence

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25

<220>

<223> Description of Artificial Sequence:Synthetic HAV
P3D Peptide

<400> 86

Ser Glu Lys Thr Ile Trp Ser Leu Ile Ala Trp Gln Arg Ser Asn Ala
1 5 10 15Glu Phe Glu Gln
20

<210> 87

<211> 20

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:Synthetic HAV
P3D Peptide

<400> 87

Ser Leu Ile Ala Trp Gln Arg Ser Asn Ala Glu Phe Glu Gln Asn Leu
1 5 10 15Glu Asn Ala Gln
20

<210> 88

<211> 21

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:Synthetic HAV
P3D Peptide

<400> 88

Trp Gln Arg Ser Asn Ala Glu Phe Glu Gln Asn Leu Glu Asn Ala Gln
1 5 10 15Trp Phe Ala Phe Gln
20

<210> 89

<211> 20

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:Synthetic
Peptide

<400> 89

Ala Ala Ala Ala Ala Ala Ala Ala Ala Ala Ala Ala Ala Ala Ala
1 5 10 15Ala Ala Ala Ala
20

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26

<210> 90
<211> 21
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:Synthetic
Peptide

<400> 90
Ala Ala Ala Ala Ala Ala Ala Ala Ala Ala Ala Ala Ala Ala Ala
1 5 10 15

Ala Ala Ala Ala Gln
20

<210> 91
<211> 20
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:Synthetic
Peptide

<400> 91
Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly
1 5 10 15

Gly Gly Gly Gly
20

<210> 92
<211> 21
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:Synthetic
Peptide

<400> 92
Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly
1 5 10 15

Gly Gly Gly Gly Gln
20

<210> 93
<211> 20
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:Synthetic
Peptide

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27

<400> 93

Gly Gly Gly Gly Gly Ala Ala Ala Ala Ala Gly Gly Gly Gly Gly Ala
1 5 10 15

Ala Ala Ala Ala
20

<210> 94

<211> 21

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:Synthetic
Peptide

<400> 94

Gly Gly Gly Gly Gly Ala Ala Ala Ala Ala Gly Gly Gly Gly Gly Ala
1 5 10 15

Ala Ala Ala Ala Gln
20